Monitoring Conducted

Conservation and recovery of species. Habitat objectives and population trends.

Background:

From the beginning of Plan implementation in 2004 through most of 2007 the Superior National Forest (SNF) continued to afford special attention to the conservation and recovery of the three federally listed threatened and endangered species occurring on the Forest: bald eagle, gray wolf, and Canada lynx. Most projects that may affect these species habitats have been designed to maintain, protect, or improve habitat. All were successfully developed to reduce or eliminate adverse effects.

2007 was an extraordinary year for threatened species on the SNF. After more than 30 years for the wolf and 40 years for the eagle, both were removed from the Fish Wildlife Service's list of endangered and threatened wildlife established under the Endangered Species Act of 1973.

Species recovery on SNF in future years will now focus on the one remaining listed species, Canada lynx.

Canada Lynx

Canada lynx was listed as a threatened species in 2000; the Superior National Forest has been involved in monitoring lynx and its habitat. From 2004-2007 the main sources of information about Canada lynx on the SNF were:

- The ongoing cooperative Canada lynx in the Great Lakes Region study, managed by the Natural Resources Research Institute (NRRI).
- SNF snow tracking surveys.
- Monitoring habitat conditions on SNF.
- Forest Plan compliance monitoring.

Threatened and Endangered Species
Summary Points

Canada lynx

- Natural Resources Research Insitute researchers have captured and collared 33 lynx on the Superior NF from 2003-2007.
- Over 15,000 locations of collared animals have been made, including located dens, and documented movements and habitat use.
- From 2004-2007 adult radio-collared females had 31 kittens in 10 litters.
- The lynx study has provided a rough estimate of 190-225 lynx in NE Minnesota. At least 78 unique individual lynx have been identified genetically.
- Management activities on all projects from 2004-2007 complied with 2004 Forest Plan direction for lynx and either had no effect or were not likely to adversely affect lynx. Fish and Wildlife Service concurred with all these findings.
- Management activities on all projects from 2004-2007 complied with Forest Plan direction for lynx.

Bald Eagle and Gray Wolf

- De-listed from federally threatened status by Fish and Wildlife Service in 2007.
- Species' status on the SNF changed to Regional Forester sensitive species and management indicator species continues.
- Forest Plan objectives changed from species recovery to maintenance, protection or improvement of habitat and preventing a trend back toward listing.
- Management activities on all projects from 2004-2007 complied with 2004 Forest Plan direction for threatened and endangered species and either had no effect or were not likely to adversely affect eagle or wolf or adversely modify wolf critical habitat.

Canada lynx study: The project has been designed to address key questions about Canada lynx in the Western Great Lakes: distribution, habitat use, prey availability, abundance, and persistence. This information is needed to effectively contribute to the recovery and conservation of lynx. Study methods are described in detail in the annual study progress reports on the lynx project website: http://www.nrri.umn.edu/lynx/ . These have included: collecting information on distribution; snow tracking lynx; tracking on the ground and in the air radio-collared lynx; studying habitat use; collecting and analyzing genetic samples (for example, from hair or scat); and conducting pellet counts of snowshoe hare (lynx's primary prey).

Snow tracking surveys: Surveys are conducted when needed, usually by snowmobile, to look for presence of lynx in project areas or where there have been reports of the animal and to collect scat, hair or other genetic material to answer questions of presence, distribution, numbers and persistence of individuals.

Starting in 2006 the SNF began a pilot project to establish permanent snow tracking routes across the SNF. The main objective was to develop a standardized, repeatable survey to monitor lynx population indices and trends on the Forest.

Habitat monitoring: Habitat conditions for lynx are monitored using forest vegetation indicators of foraging, denning, and connectivity and security. As indicators of potential human disturbance and competition from other carnivores (such as bobcat), road and trail density, miles, and effectiveness of road closures are also monitored.

Forest Plan compliance: Habitat conditions, effects of management activities, and all that is known about lynx ecology on the SNF are evaluated for every ground-disturbing project on the Forest in Biological Assessments for the projects. This information is used to determine whether projects are in compliance with Forest Plan direction for lynx.

Bald Eagle and Gray Wolf

Monitoring activities conducted for eagle and wolf are described in the Management Indicator Species section on pages 51-59 of this report.

Evaluation and Conclusions

Figure1. Lynx Kitten.

Canada Lynx

Canada lynx study: Natural Resources Research Institute (NRRI) researchers have captured and collared 33 lynx on the SNF. Over 15,000 locations of collared animals have been made, including located dens, and documented movements and habitat use. From 2004-2007 adult radio-collared females had 31 kittens in 10 litters. The status of 8 kittens greater than 2 years that were marked or radio-collared at the den site was 5 dead and 3 alive. Only one animal collared as a kitten still has a transmitting radio-collar. Of the 33 lynx radio-collared, 17 are dead. Mean duration of monitoring was 1.6 years, with 21 of 33 lynx monitored for 1 to 3 years. Lynx have maintained a continuous presence from 2003 to date. At least 78 unique individual lynx have been identified genetically through 2007 with additional samples to be submitted this year.

It is very difficult to estimate abundance of carnivore species such as lynx that are uncommon and present at low densities on the landscape. Lynx also add an additional level of difficulty because of their ability to move greater than 100 km, either repeatedly or a single time. (Moen et al, 2008). Based on an assumption that 25% of Cook, Lake, and St. Louis Counties might be suitable lynx habitat, Moen et. Al (2008) estimated possible lynx numbers of 190 to 250.

Location and distribution: Figure 2 below shows the known distribution of lynx through 2006. The heavy concentration of sites indicates the prominence of the SNF as core lynx habitat in the Western Great Lakes.

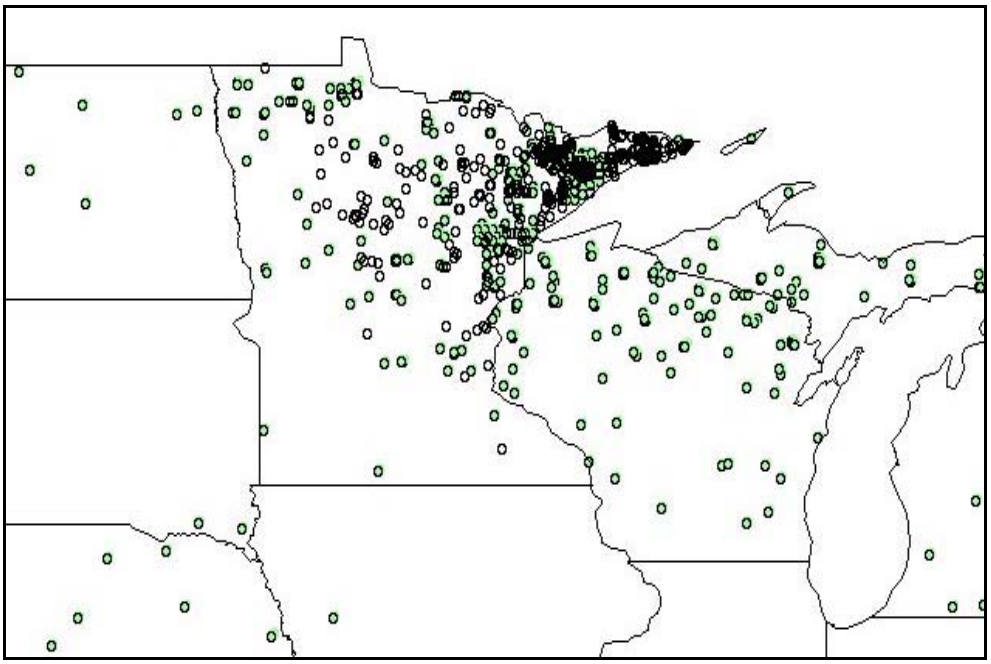

Figure 2. Locations of Canada lynx from 2001-2006.

Figure 2. (This map is excerpted from the Canada Lynx in the Great Lakes Region – Final Report (Moen et al. 2008) Locations of Canada lynx sightings reported to the Minnesota DNR from 2001 to 2006 is (open symbols) and historical Canada lynx sightings shown in green symbols (McKelvey et al. 2000). Minnesota sightings map can also be seen at www.dnr.state.mn.us/eco/nhnrp/research/lynx_sightings.html. The black area in northeastern Minnesota is due to overlaying of multiple sightings reports from the historical period and from 2001-2006. There have been sighting reports in Wisconsin and Michigan that are not included on this map.

From the snowshoe hare pellet count study, researchers found the highest densities in cover types that have a conifer component or have a brushy layer at the ground surface. These same cover types (regenerating forest, conifer, and brush) are also selected for by Canada lynx at the scale of daily movements, their home range, and with respect to their distribution in Minnesota.

SNF snow tracking surveys (See Figure 3): From 2004-2007 project specific snow tracking surveys were conducted for four of the eight large landscape scale vegetation management projects (Dunka, Mid-Temperance, Whyte and Echo Trail). Tracks confirmed lynx presence in Dunka (3 lynx) and Whyte (1or 2 lynx tracks seen may have been same individual). Project-specific monitoring wasn't necessary on the other four projects since the lynx study had confirmed presence of lynx.

In the winter of 2006/2007, snow-tracking protocol to monitor and inventory lynx began. Unfortunately snow and weather conditions were poor and few routes were run. Because this is a long-term protocol, the SNF can expect variations, and will continue its efforts.

Figure 3. Lynx Tracks.

Habitat monitoring: During Forest Plan revision the Forest Service and Fish and Wildlife Service agreed upon indicators of habitat conditions that would address lynx risk factors. Vegetative habitat indicators included: amount of habitat suitable for snowshoe hare (primary prey) and red squirrel (secondary prey); amount of habitat

not suitable for snowshoe hare; denning habitat; connectivity habitat. These are monitored for an annual "snapshot" of conditions. But data were also updated for each of the eight large landscape scale vegetation management projects that were decided between 2004 and 2007 to ensure best available information was used to plan and analyze projects. Since 2004 all eight of the projects (Virginia, Tomahawk, Dunka, Inga South, Mid-Temperance, Whyte, Devil Trout, and Echo Trail) maintained, protected, or improved habitat indicator conditions for lynx.

Roads and trails, selected indicators of human disturbance and competition from bobcats, have also been monitored annually. Since 2004 an effort has been made to edit errors in the roads database. This process has revised many incorrect mileages, deleted roads that did not actually exist and changed jurisdictions on roads. These edits were primarily done on OML 1and 2 roads which accounts for much of the difference between 2007 and prior years. These roads, in effect, become part of baseline conditions for lynx in 2004 since they are not new, but rather recently discovered.

Since 2004 the miles of OML1 and 2 roads have increased. Existing and planned OML 1 road miles are consistent with Forest Plan projections. Existing and planned OML 2 road miles currently exceed the miles projected for 2014. This increase has been due to a number of factors including edits to errors in the database and assigning unclassified roads and OML 1 roads to OML 2 roads. No new OML 2 road construction was approved in 2007 decisions.

The Forest Plan objective is to have zero unclassified roads. We will strive to meet this objective by implementing Forest Plan direction to either add these roads to our system or to decommission them. When actual accomplishments and all approved decisions are implemented unclassified road mileage will be reduced about 107 miles or by 52% from 2004. See the Transportation Section on pp 91-93 for a more thorough discussion on roads.

Forest Plan compliance: Since 2004, 30 projects have been developed to implement the Forest Plan through 2007. Most of the eight large landscape scale vegetation management projects, in fact, were designed, in part, to benefit lynx by maintaining or providing for future suitable habitat. All projects were either 1) not likely to adversely affect lynx, or 2) were expected to have no effect. All projects were in compliance with relevant Forest Plan management direction, including standards and guidelines.

The SNF consulted with the Fish and Wildlife Service on any project that had the potential to affect lynx, and in all cases they concurred with SNF determinations and affirmed SNF compliance with Forest Plan. These findings are documented in Biological Assessments for all projects and can be found on the SNF website at: http://www.fs.fed.us/r9/forests/superior/projects/

Bald Eagle and Gray Wolf

See MIS section on pp 51-59 for further information on eagle and wolf population, habitat trends and management impacts.


Figure 4. Gray Wolf.

Since 2004, 30 projects have been developed to implement the Forest Plan through 2007. Most of the eight large landscape scale vegetation management projects, in fact, were designed to benefit these species by maintaining or providing for future suitable habitat. All were either 1) not likely to adversely affect wolf and eagle or 2) were expected to have no effect. All projects were in compliance with relevant Forest Plan management direction, including standards and guidelines.

The SNF consulted with the Fish and Wildlife Service on any project that had the potential to affect wolf and eagle, and in all cases they concurred with SNF determinations and affirmed SNF compliance with Forest Plan. These findings are documented in Biological Assessments for all projects and can be found on the SNF website at: http://www.fs.fed.us/r9/forests/superior/projects/

These successful management efforts, together with similar efforts by partners and on the SNF from the previous thirty or more years, have helped contribute to the successful recovery of both the bald eagle and gray wolf. Refer to the Fish and Wildlife Service's final rules for de-listing for additional background and rationale (USDI, Fish and Wildlife Service. 2007a, 2007b).


Figure 5. Bald Eagle

With de-listing, the status of wolf and eagle has changed to Regional Forester sensitive species for at least the next five years. As sensitive species, they will continue to receive special management emphasis, but Forest Plan objectives have changed from recovery (Forest Plan Objective O-WL-4, p. 2-29) to maintaining, protecting, or improving habitat (O-WL-18, p. 2-31) and preventing a trend back toward listing (G-WL-11, G-WL-12, and S-WL-5, pp, 2-31-32).

To manage to meet new objectives for wolf and eagle, SNF will continue to implement the relevant protective guidelines of the species' former recovery plans, per Forest Plan direction in S-WL-3 (p. 2-31) for eagle and S-WL-4 (p. 2-31) for the wolf. For example, the SNF will continue to buffer known eagle nests from disturbances and manage for current and future habitat, especially since the eagle remains under federal protection through the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. For wolf the SNF will continue to manage for prey species habitat and maintain high standard roads to no more than 1 mi/sq. mi.

Because of their new status as sensitive species and because they are also management indicator species, the monitoring of wolf and eagle populations and habitats will continue.